The Comparison of Artificial-Neural and Auto-Regressive Models for Forecasting Agricultural Product Price of Iran

Abstract

The majority of natural phenomenons have the nonlinear treatment which applying of nonlinear models is perquisite of their suitable assessing. In not long years ago, various models were used in order to economic variables forecasting but this models had handicaps so that researchers can't consider the complex and nonlinear effective factor on forecasting. Therefore in these days, new methods of forecasting have appeared which can detect the relationships among the variables -whatever complex and nonlinear- by adapting of man brain's learning process. On the order hand, in averse of many important markets which have studied from the various aspects, the agricultural products market have postponed from the new researches and sciences of forecasting so that the majority of these few out-and-out studies are based of econometric methods. Therefore in this study, the performance of ANN and ANFIS artificial-neural and ARIMA and GARCH autoregressive models in agricultural products retail price forecasting of Iran (include of rice, poultry, egg and meat) for 1, 2 and 4 week ahead was compared by using of weekly data of welfare supermarkets and IranSLAL website related to 2002:3-2008:6 and applying the most important models evaluating criterions. Results showed that the quantity achieved form dividing the R^2, RMSE, MSE and MAD of GARCH to ARIMA, ANN to GARCH and ANFIS to ANN for considered products and time horizons, are ≥ 1 and ≤ 1, respectively which show that artificial-neural models outperform the autoregressive models and ANFIS model outperforms the ANN.

Keywords: ARIMA; GARCH; ANN; ANFIS; Forecast; Agricultural product price.

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